AMENDMENTS TO THE SPECIFICATION:

Before the first paragraph on page 1, please insert the following paragraph:

This application is a divisional application of Application No. 09/985,131, filed November 1, 2001 which is a continuation of International Application No. PCT/JP01/01602, filed on March 2, 2001, which International Application was published by the International Bureau in Japanese on September 7, 2001.

Please replace the paragraph beginning on Page 6, line 24 and ending on Page 7, line 6, with the following:

According to one aspect, the present invention is a steel sheet for a color CRT mask frame having a steel composition consisting essentially of, in mass %,

C: 0.03 - 0.30%, Si: at most 0.30%, Mn: 0.05 - 1.5%,
P: at most 0.05%, S: at most 0.02%, Mo: 0.02 - 0.50%,
V: 0.02 -0.20%, Al: at most 0.10%, N: 0.0040 - 0.0200%,

optionally one or two or more of Cu: at most 1.0%, Ni: at most 1.0%, Cr: at most 2.0%, W: at most 1.0%, B: at most 0.003%, Ti: at most 0.030%, and Nb: at most 0.030%, and a balance of iron and unavoidable impurities, with Al $\leq$ (7.0)N, and having a metal structure in which the ferrite ~~particle diameter~~ grain size is at most 15 micrometers and the ferrite volume ratio is at most 90%.

Please replace the two paragraphs beginning on Page 14, line 9 and ending on Page 14, line 23, with the following:

A steel sheet of the present invention having the above-described steel composition has a two-phase metal structure of ferrite-pearlite, ferrite-bainite, or ferrite-martensite. A steel sheet of the present invention is characterized in that in this metal structure, the ferrite ~~particle diameter~~ grain size is at most 15 micrometers, and the ferrite volume ratio is at most 90%.

As the ferrite ~~particle diameter~~ grain size in the metal structure increases, there is a tendency for the strength of the steel sheet to decrease. Even if the steel composition is within the above-described range, it becomes difficult for a steel having a ferrite ~~particle diameter~~ grain size larger than 15 micrometers to obtain the high-temperature strength desired of a mask frame. This is because the improvement in high-temperature strength based on precipitation of fine carbon-nitrides by the above-described initial heat treatment is not expected. The ferrite ~~particle diameter~~ grain size is preferably at most 14 micrometers. The ferrite ~~particle diameter~~ grain size can be adjusted by the hot rolling conditions, particularly the finishing temperature and the coiling temperature.

Please replace the three paragraphs beginning on Page 15, line 23 and ending on Page 16, line 9, with the following:

In order to refine crystal grains, it is fundamental that the finishing temperature for hot rolling be at least 820°C and at most 950°C and just above the Ar_3 transformation point.

This finishing temperature also applies for the case in which cold rolling is carried out after hot rolling. If the finishing temperature is less than 820°C, hot rolling is carried out in the α phase region, and at greater than 950°C, hot rolling is carried out in the high-temperature γ phase region. In either case, crystal grains coarsen, and ferrite grains become large. A rough guideline for keeping the ferrite ~~particle diameter~~ grain size at most 15 micrometers is for the finishing temperature to preferably be in the high-temperature range of 820 - 930°C.

If the coiling temperature is less than 400°C, the shape of the steel sheet after rolling worsens. If the coiling temperature exceeds 700°C, there are cases in which the ferrite volume ratio exceeds 90% and the ferrite ~~particle diameter~~ grain size exceeds 15 micrometers. In addition, scale becomes thick, and the ability to remove scale by pickling worsens.

The finishing temperature for hot rolling and the coiling temperature can be set in the above-described range so as to obtain a metal structure with a ferrite ~~particle diameter~~ grain size of at most 15 micrometers and a ferrite volume ratio of at most 90%. If the amounts of Mo, Nb, Cr, V, and the like which have the effect of suppressing recrystallization and ferrite transformation in a hot state become large, the limits on the finishing temperature and the coiling temperature are eased.

Please replace the paragraph beginning on Page 20, line 3 and ending on Page 20, line 7, with the following:

(2) Metal structure: After a test piece of the as-rolled steel sheet was etched with nital etching reagent, observation with an SEM at a magnification of 2000 times was carried out, and the ~~particle diameter~~ grain size and volume ratio of ferrite were determined. The ferrite volume ratio was determined by finding the ratio of area of ferrite in a plurality of SEM observations and taking the average thereof.

Please replace Table 2 beginning on page 24 and ending on page 25, with the following:

TABLE 2

Run No.	Manufacturing Conditions				As-Rolled Properties					Properties after Blackening Treatment at 570 ℃×30 minites			Other Properties					Comments
	Hot Rolling Conditions		Cold Rolling Reduction	Sheet Thickness	Material Structure: Ferrite Condition		Tensile Properties[1) YS, TS: N/mm² El: %			Room Temp. and High Temp. YS: N/mm²		High Temp. Creep (%)	Surface Quality	Formabitity	Weldability	Adhesion of Black Film	High Temp. Creep Properties	
	Finishing Temp (℃)	Coiling Temp. (℃)	(%)	(mm)	Volume Ratio (%)	Grain Size ~~Particle Diameter~~ (μm)	YS	TS	El	Room Temp	460 ℃							
1	860	500	0	4.5	47	4.1	620	740	21.5	632	398	0.07	○	○	○	○	○	Present Invention
2	860	500	0	4.5	40	3.8	630	805	18.2	778	515	0.02	○	○	○	○	○	
3	860	580	0	4.5	49	4.4	612	738	20.6	646	423	0.04	○	○	○	○	○	
4	860	650	0	4.5	70	9.7	588	690	21.5	619	406	0.06	○	○	○	○	○	
5	820	400	0	4.5	18	1.9	699	717	15.8	706	410	0.07	○	○	○	○	○	
6	950	650	0	4.5	88	13.8	570	690	20.8	597	335	0.09	○	○	○	○	○	
7	860	580	0	4.5	48	4.1	618	801	17.5	651	465	0.03	○	○	○	○	○	
8	860	580	0	4.5	48	4.8	603	757	19.1	629	423	0.04	○	○	○	○	○	
9	860	580	0	4.5	45	5.6	593	739	19.4	606	430	0.05	○	○	○	○	○	
10	860	580	0	4.5	85	14.0	579	690	22.1	580	325	0.09	○	○	○	○	○	
11	860	580	0	4.5	51	4.5	610	735	19.1	648	523	0.02	○	○	○	○	○	
12	860	580	0	4.5	50	4.3	615	747	19.8	641	411	0.04	○	○	○	○	○	
13	860	500	0	5.0	65	7.1	504	605	26.1	529	315	0.09	○	○	○	○	○	
14	860	500	0	5.0	58	6.5	525	618	25.3	555	344	0.08	○	○	○	○	○	
15	860	500	0	5.0	49	5.5	538	632	23.8	571	362	0.08	○	○	○	○	○	
16	860	470	0	5.0	65	6.7	536	595	26.1	541	315	0.09	○	○	○	○	○	
17	860	470	0	5.0	63	6.0	552	618	25.3	575	329	0.09	○	○	○	○	○	
18	860	470	0	5.0	61	5.4	589	650	23.1	622	353	0.08	○	○	○	○	○	
19	860	580	0.3	4.5	49	4.4	659	787	17.0	860	480	0.04	○	○	○	○	○	
20	860	580	2.0	4.5	49	4.4	665	790	16.8	865	490	0.03	○	○	○	○	○	
21	860	580	7.0	4.5	49	4.4	692	815	11.8	899	551	0.01	○	○	○	○	○	
22	800	550	0	4.6	85	9.5	515	641	27.2	593	288	≫0.2	○	○	×	○	×	Comparative
23	860	500	0	4.6	60	5.9	513	648	25.4	520	371	0.12	○	○	○	○	△	
24	860	580	0	4.6	75	8.5	598	743	21.5	601	298	≫0.2	○	○	○	○	×	
25	860	580	0	4.6	78	15.2	558	732	20.6	555	288	≫0.2	○	○	○	○	×	
26	860	580	0	4.6	85	16.1	515	626	23.5	511	283	≫0.2	○	○	○	○	×	

1) YS: 0.2 % Yeald Stress, TS: Tensile Strength, El: Total Elongation

TABLE 2 (Continued)

Run No.	Manufacturing Conditions				As-Rolled Properties					Properties after Blackening Treatment at 570 ℃×30 minites			Other Properties					Comments
	Hot Rolling Conditions		Cold Rolling Reduction (%)	Sheet Thickness (mm)	Material Structure: Ferrite Condition		Tensile Properties[1] YS, TS: N/mm² El: %			Room Temp. and High Temp. YS: N/mm²		High Temp. Creep (%)	Surface Quality	Formabitity	Weldability	Adhesion of Black Film	High Temp. Creep Properties	
	Finishing Temp (℃)	Coiling Temp. (℃)			Volume Ratio (%)	Grain Size ~~Particle Diameter~~ (μm)	YS	TS	El	Room Temp	460 ℃							
27	860	580	0	4.6	90	18.2	522	604	24.1	510	272	≫0.2	○	○	○	○	×	Comparative
28	860	580	0	4.6	95	25.1	502	662	24.3	498	256	≫0.2	○	○	○	○	×	
29	860	580	0	4.6	91	8.5	500	595	25.8	488	251	≫0.2	○	○	○	×	×	
30	860	580	0	4.6	86	15.8	435	542	27.2	415	212	≫0.2	○	○	○	○	×	
31	820	630	0	4.6	88	4.3	794	949	17.3	631	398	0.05	○	×	×	○	○	
32	810	580	0	4.6	91	18.3	520	620	18.9	536	322	≫0.2	○	○	○	○	×	
33	860	710	0	4.5	91	14.9	558	667	21.9	583	335	≫0.2	○	○	○	○	×	
34	860	580	0	4.6	39	5.7	621	793	17.0	717	443	0.03	○	×	×	○	○	
35	860	580	0	4.6	51	4.5	580	705	18.3	609	377	0.04	×	○	×	×	○	
36	860	580	0	4.6	77	15.1	537	628	24.1	535	310	≫0.2	×	○	×	○	×	
37	860	580	0	4.6	31	2.8	616	747	20.5	678	419	0.08	○	○	×	○	○	
38	860	580	0	4.6	48	5.1	560	680	22.7	588	364	0.04	×	×	×	○	○	
39	860	580	0	4.6	49	4.3	565	680	22.3	591	367	0.09	×	×	×	○	○	
40	860	580	0	4.6	48	3.9	723	823	17.1	737	456	0.04	×	×	○	○	○	
41	860	580	0	4.6	31	6.1	695	821	20.2	643	398	0.06	○	×	○	○	○	
42	860	580	0	4.6	43	4.0	705	840	16.5	814	504	0.02	○	×	×	○	○	
43	860	580	0	4.6	91	15.2	445	560	25.8	425	265	≫0.2	○	○	○	○	×	
44	860	580	0	4.6	31	3.2	698	831	19.8	722	448	0.04	○	×	○	○	○	
45	860	580	0	4.6	30	3.0	702	829	21.5	662	410	0.03	○	×	○	○	○	
46	860	580	0	4.6	92	8.0	601	680	21.0	568	351	0.19	×	○	×	○	×	
47	860	580	0	4.6	48	4.4	589	680	22.3	570	325	≫0.2	○	○	×	○	×	
48	860	580	0	4.6	40	3.5	705	825	20.6	664	411	0.03	○	×	×	○	○	
49	860	580	0	4.6	71	10.1	528	638	23.9	488	302	≫0.2	○	○	○	⊙	×	
50	860	580	0	4.6	51	4.3	551	638	21.9	607	376	0.07	×	○	○	○	○	
51	860	580	0	4.6	66	12.5	433	546	29.1	513	318	0.12	○	○	○	○	△	

[1] YS: 0.2 % Yeald Stress, TS: Tensile Strength, El: Total Elongation

Please replace the paragraph beginning on Page 26, line 19 and ending on Page 26, line 23, with the following:

The relationships of the yield stress at 460°C and the creep (460°C for 1 hour) to the ferrite ~~particle diameter~~ grain size and the ferrite volume ratio for Nos. 2 - 4, 6, 32, and 33 of Table 2 are shown in Figure 1 – Figure 4 as graphs. From these figures, the criticality of a ferrite ~~particle diameter~~ grain size of at most 15 micrometers and a ferrite volume ratio of at most 90% according to the present invention is clear.